

Listing of Claims

The following listing of claims is intended to supersede all previously filed listings of claims. Changes are shown with deletions in ~~strikethrough~~ and additions underlined.

Kindly enter the following amendments to the claims:

Claim 1 (currently amended). A dielectric barrier discharge plasma cell, comprising:

 a conductor adapted to receive an alternating current voltage; and

 a dielectric spaced apart from said conductor, said dielectric comprising:

 a dielectric substrate having a first surface nearer to said conductor and a second surface, opposite said first surface and farther away from said conductor;

 a conductive coating on said second surface of said dielectric substrate, adapted to receive the alternating current voltage; and

 a protective coating covering the conductive coating and located on the side of the dielectric substrate farther away from said conductor;

 wherein said cell is adapted to generate plasma in the space between said conductor and said dielectric in response to the application of the alternating current voltage, said dielectric and said conductor are positioned to create a turbulent air flow therebetween, and said cell is configured for stacking with another substantially similar dielectric discharge plasma cell.

Claim 2 (original). The dielectric barrier discharge plasma cell of claim 1 wherein said dielectric and said conductor are uniformly spaced from one another.

Claim 3 (original). The dielectric barrier discharge plasma cell of claim 1 further comprising a transformer and wherein said alternating current voltage is raised from an input voltage to an operational voltage by said transformer.

Claim 4 (original). The dielectric barrier discharge plasma cell of claim 1 wherein said conductor consists of a conductor substrate and a conductor coating layer.

Claim 5 (original). The dielectric barrier discharge plasma cell of claim 4 wherein said conductor substrate comprises an electrode.

Claim 6 (original). The dielectric barrier discharge plasma cell of claim 4 wherein said conductor substrate comprises stainless steel.

Claim 7 (original). The dielectric barrier discharge plasma cell of claim 4 wherein said conductor substrate comprises aluminum.

Claim 8 (original). The dielectric barrier discharge plasma cell of claim 4 wherein said conductor substrate comprises copper.

Claim 9 (original). The dielectric barrier discharge plasma cell of claim 4 wherein said conductor coating layer comprises a catalyst.

Claim 10 (original). The dielectric barrier discharge plasma cell of claim 9 wherein said catalyst comprises nickel.

Claim 11 (original). The dielectric barrier discharge plasma cell of claim 1 further comprising a plurality of spacer elements for spacing said dielectric and said conductor.

Claim 12 (cancelled).

Claim 13 (previously presented). The dielectric barrier discharge plasma cell of claim 1 further comprising an adhesion layer between said conductive coating and said dielectric substrate.

Claim 14 (original). The dielectric barrier discharge plasma cell of claim 13 wherein said adhesion layer comprises titanium.

Claim 15 (original). The dielectric barrier discharge plasma cell of claim 13 wherein said adhesion layer comprises chromium.

Claim 16 (original). The dielectric barrier discharge plasma cell of claim 13 wherein said adhesion layer is about 400 angstroms to about 600 angstroms in thickness.

Claim 17 (original). The dielectric barrier discharge plasma cell of claim 13 wherein said adhesion layer is sputter coated onto said dielectric substrate.

Claim 18 (original). The dielectric barrier discharge plasma cell of claim 1 wherein said conductive coating comprises copper.

Claim 19 (original). The dielectric barrier discharge plasma cell of claim 1 wherein said conductive coating is about 25 microns to 100 microns in thickness.

Claim 20 (original). The dielectric barrier discharge plasma cell of claim 13 wherein said conductive coating is sputter coated onto said adhesion layer.

Claim 21 (original). The dielectric barrier discharge plasma cell of claim 13 wherein said conductive coating is sputter coated onto said adhesion layer for about 2000 angstroms in thickness and then plated onto said adhesion layer.

Claim 22 (previously presented). The dielectric barrier discharge plasma cell of claim 1 wherein said protective layer comprises nickel.

Claim 23 (previously presented). The dielectric barrier discharge plasma cell of claim 1 wherein said protective layer comprises a tin based solder alloy.

Claim 24 (previously presented). The dielectric barrier discharge plasma cell of claim 1 wherein said protective layer is about 25 microns to about 100 microns in thickness.

Claim 25 (previously presented). The dielectric barrier discharge plasma cell of claim 1 wherein said protective layer is plated onto said conductive coating.

Claim 26 (previously presented). The dielectric barrier discharge plasma cell of claim 1 wherein said second surface of said dielectric substrate is treated such that said conductive coating adheres thereto.

Claim 27 (previously presented). The dielectric barrier discharge plasma cell of claim 26 wherein said second surface of said dielectric substrate is sand blasted.

Claim 28 (previously presented). The dielectric barrier discharge plasma cell of claim 26 wherein said second surface of said dielectric substrate is ground.

Claim 29 (previously presented). The dielectric barrier discharge plasma cell of claim 2 wherein said dielectric and said conductor are arranged as parallel plates.

Claim 30 (original). The dielectric barrier discharge plasma cell of claim 29 wherein said

dielectric and said conductor are corrugated.

Claim 31 (original). The dielectric barrier discharge plasma cell of claim 1 wherein said dielectric is cylindrical.

Claim 32 (original). The dielectric barrier discharge plasma cell of claim 31 wherein said conductor is coaxial with said dielectric.

Claim 33 (original). The dielectric barrier discharge plasma cell of claim 31 wherein said conductor comprises at least one cork screw shaped element.

Claim 34 (original). The dielectric barrier discharge plasma cell of claim 33 wherein said cork screw shaped element comprises a thin electrode.

Claim 35 (currently amended). A dielectric barrier discharge plasma system, comprising: a plurality of dielectric barrier discharge plasma cells, wherein each of said dielectric barrier discharge plasma cells comprises: a conductor adapted to receive an alternating current voltage; and a dielectric spaced apart from said conductor, said dielectric comprising: a dielectric substrate having a first surface nearer to said conductor and a second surface, opposite said first surface and farther from said conductor; and a conductive coating on said second surface of said dielectric substrate, adapted to receive an alternating current voltage; wherein said dielectric and said conductor are positioned to create a turbulent air flow therebetween, and wherein said cells are generally rectangular in cross-section and are adapted to generate plasma in the space between said conductor and said dielectric; and wherein said plurality of dielectric barrier discharge plasma cells are arranged radially.

Claim 36 (currently amended). A dielectric barrier discharge plasma system, comprising: a

plurality of dielectric barrier discharge plasma cells, wherein each of said dielectric barrier discharge plasma cells comprises: a conductor adapted to receive an alternating current voltage; and a dielectric spaced apart from said conductor, said dielectric comprising: a dielectric substrate having a first surface nearer to said conductor and a second surface, opposite said first surface and farther from said conductor; a conductive coating on said second surface of said dielectric substrate, adapted to receive an alternating current voltage; and a protective layer covering the conductive coating and located on the side of the dielectric substrate farther away from said conductor; wherein said dielectric and said conductor are positioned to create a turbulent air flow therebetween, and wherein said cells are generally rectangular in cross-section and are adapted to generate plasma in the space between said conductor and said dielectric; and wherein said plurality of dielectric barrier discharge plasma cells are stacked.

Claims 37-57 (Cancelled).